

UML AND TESTING TOOLS LAB
BLOOD BANK
MANAGEMENT SYSTEM
(BATCH-7)

BACHELOR OF TECHNOLOGY
IN
INFORMATION TECHNOLOGY

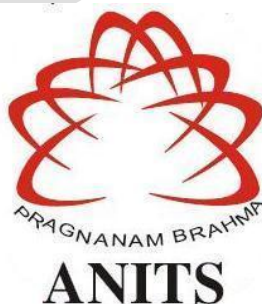
Submitted By:

- | | |
|---------------------------|----------------|
| 1. Ms. M. Sai Varshitha | (A21126511107) |
| 2. Mr. P. Harsha Vardhan | (A21126511116) |
| 3. Ms. V. Arthi Gangothri | (A21126511132) |
| 4. Ms. M. Anitha | (A21126511209) |

Under the guidance

Mrs. A. Surekha

Assistant Professor



DEPARTMENT OF INFORMATION TECHNOLOGY
ANIL NEERUKONDA INSTITUTE OF TECHNOLOGY AND SCIENCES
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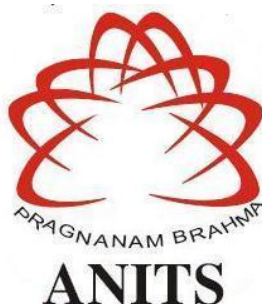
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Sangivalasa, Bheemili mandal, Visakhapatnam dist.(A.P)



CERTIFICATE

This is to certify that the project reported entitled “**BLOOD BANK MANAGEMENT SYSTEM**” submitted by M.SAI VARSHITHA, P. HARSHA VARDHAN, V. ARTHI, M. ANITHA in partial fulfilment of the requirements for the award of the degree of **Bachelor of Technology in Information Technology** in Anil Neerukonda Institute of technology and sciences, Visakhapatnam is a record of work carried out under my guidance and supervision.

Lecturer In Charge

Mrs. A. Surekha,
Department of IT

Head of the Department

Prof M. Rekha Sundari,
Department of IT

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INTRODUCTION

1.1 Problem Statement:

- The **BLOOD BANK MANAGEMENT SYSTEM** project is a great project. This project is designed for successful execution of blood bank management system functionality.
- The basic building aim is to provide online blood bank service to the people. It is a browser-based system that is designed to store, process, retrieve and analyse information concerned with the administrative and inventory management within a blood bank system.

1.2 Description:

- Admin is the main role in the system, admin can manage all the activities like managing donor, patients and blood stock etc.
- Donor is also an important role in the system. If any person or donor want to donate the blood, he or she has to register himself first. Once he or she register he/she can login to the system
- Where he can manage or execute donor's activities Patient is the one who is suffering from any disease and he needs blood. He can go to the system and register himself as a patient. Once he registers, he/she can login to the system and access patient dashboard.
- This system is used for maintain whole information about admin, donors, blood stock and patients.
- There are 3 ROLES in this project.

- Admin
- Donors
- Patients

1.3 REQUIREMENTS OF ACTORS:

Donor:

- Donor's Name
- Donor's blood group
- Donor's phone number
- Donor's email

Patient:

- Patient name
- Patient email
- Patient contact no
- Patient blood group

Admin

- Admin email id
- Admin name.

Records

- Donor records
- Patient records
- Admin details
- Stock records
- Patients, donors request records

SOFTWARE REQUIREMENT SPECIFICATIONS:

2.1 Introduction

PURPOSE:

- This project is built to maintaining all the information pertaining to blood donor, patient information and the stock of all the blood group available in the bank. Aim is to provide transparency in this field, make the process of obtaining blood from a blood bank hassle free and corruption free and make the system of blood bank management effective.

Scope:

- This system will be a web-based application that allows blood bank to manage donors and patients and allow to Accept and Reject their requests and maintain their details.

Technologies used:

1. Front-End Development:

- Html (Hyper Text Mark-up Language)
- CSS (Cascading Style Sheets)

2. Back-End Development:

- PHP
- MySQL

2.2 System Overview

System Description:

- This project is built to maintaining all the information pertaining to blood donor, patient information and the stock of all the blood group available in the bank.
- Aim is to provide transparency in this field, make the process of obtaining blood from a blood bank hassle free and corruption free and make the system of blood bank management effective.

Users:

- **Admin:** Admin is the main role in the system, admin can manage all the activities like managing donor, patients and blood stock etc.
- **Donor:** Donor is also an important role in the system. If any person or donor wants to donate the blood, he or she has to register themselves first. Once he or she registers he/she can login to the system where he can manage or execute donor's activities.
- **Patients:** Patient is the one who is suffering from any disease and he needs blood. He can go to the system and register himself as a patient. Once he registers, he/she can login to the system and access patient dashboard.

FUNCTIONAL REQUIREMENTS

3.1 Admin Functionalities:

- Check the available stock of the blood
- Manage donors
- Manage patients
- Manage blood donations
- Manage blood requests
- Logout
- Admin can manage donations like he can accept or reject the donations request based on the donor details. He can accept or reject blood requests based on the blood stock available.
- Admin can manage all the donor and patient. He can edit the details of donors or patients. He can delete any donor or patients.

3.2 Donor Functionalities:

- Donate blood
- Manage donation history
- Check the status of donation requests
- Logout
- Once donor makes a request to donate blood, admin has to take action on that request based on the donor details. Once admin accept or reject that donation request, it will be automatically update to the donor dashboard.
- Donor can check the status of his request. Once his donation request is accepted, he or she will be called to donate blood at the specified donation camp.

3.3 Patient Functionalities:

- Make blood request
- Check the status of his request
- Logout
- Once the patient makes a request for blood, he has to provide the basic details like the no of blood units required, blood group, disease etc.
- Once he makes a request, it will be reflected in the admin dashboard. Now admin has to take action on that request. Admin can accept or reject that request based on the patient details or blood stock available in the system.

NON – FUNCTIONAL REQUIREMENTS

4.1 Security

- The system must implement robust security measures to protect sensitive data.
- User data should be stored securely, and password hashing should be employed.
- Access control should be implemented to ensure data privacy and integrity.

4.2 Performance

- The system should be responsive and capable of handling a reasonable load.
- Database queries should be optimized for efficient retrieval of data.

4.3 Usability

- The user interface should be user-friendly, intuitive, and accessible.
- The system should support multiple browsers and devices.

4.4 Reliability

- The system should have backup and recovery mechanisms to prevent data loss.

4.5 Scalability

- The system should be scalable to accommodate a growing user base and increasing data.

UML DIAGRAMS

- UML, short for Unified Modelling Language, is a standardized modelling language consisting of an integrated set of diagrams, developed to help system and software developers for specifying, visualizing, constructing, and documenting the artifacts of software systems, as well as for business modelling and other non-software systems.
- The UML represents a collection of best engineering practices that have proven successful in the modelling of large and complex systems.
- The UML is a very important part of developing object-oriented software and the software development process.
- The UML uses mostly graphical notations to express the design of software projects.

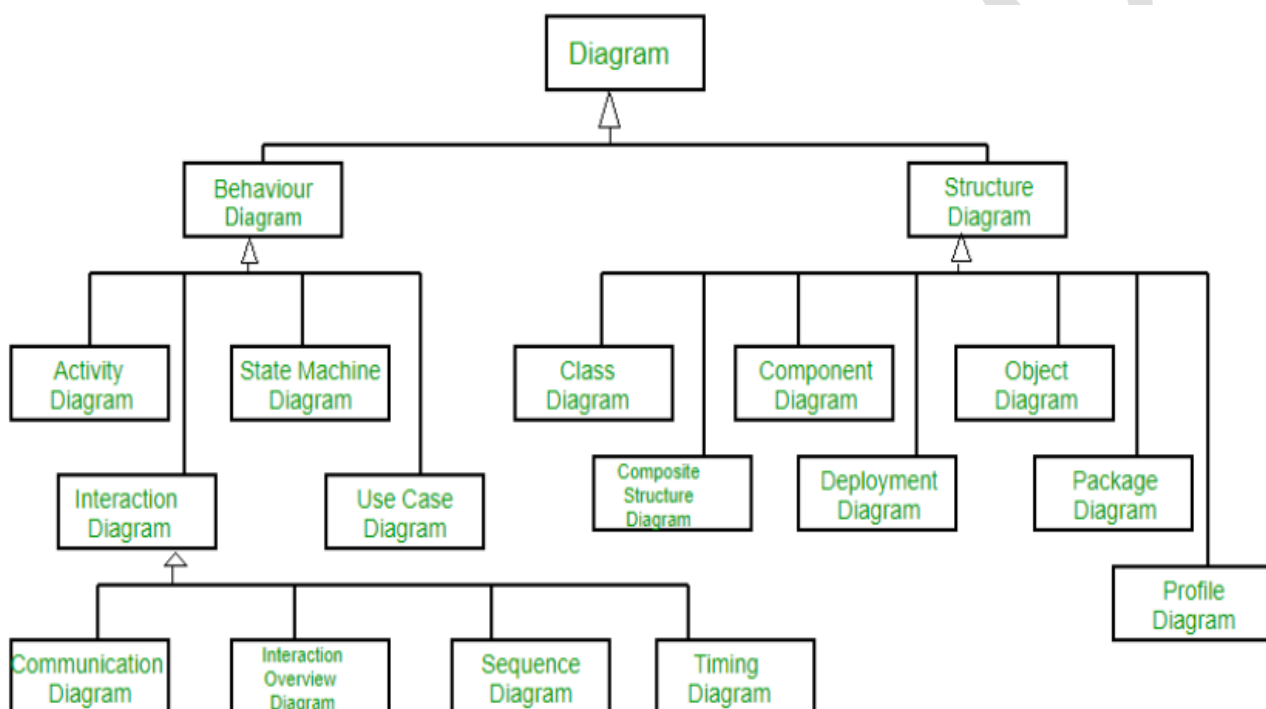


Figure 1: Classification of UML Diagrams

5.1 USE CASE DIAGRAM:

- Use Case Diagrams are used to depict the functionality of a system or a part of a system.
- They are widely used to illustrate the functional requirements of the system and its interaction with external agents (actors).
- A use case is basically a diagram representing different scenarios where the system can be used. A use case diagram gives us a high-level view of what the system or a part of the system does without going into implementation details.

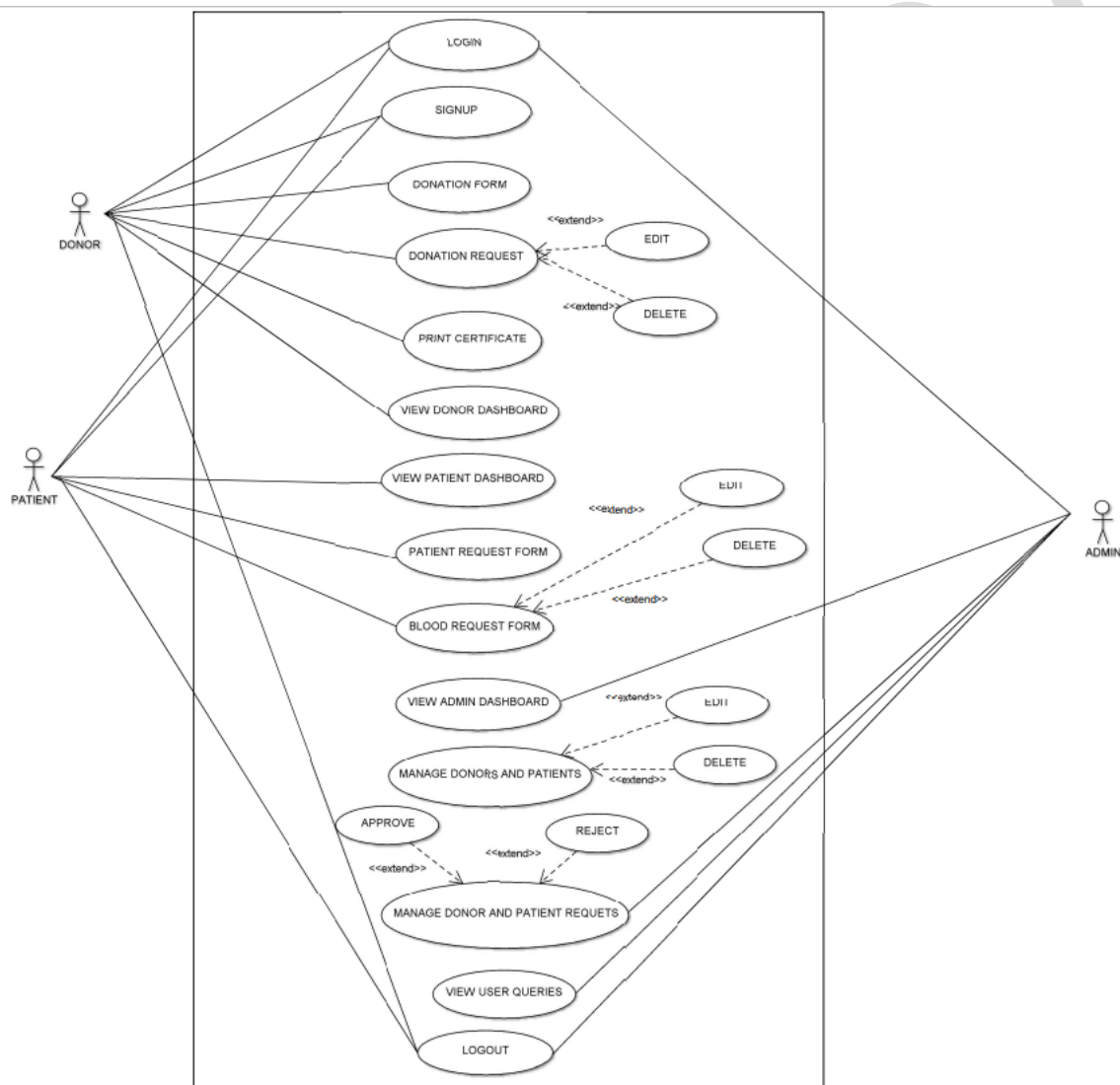


Figure 2: USE CASE DIAGRAM

Use Cases:

- login, signup, donation form, check donor requests, print certificate, manage donors, receiver form, receiver requests, manage patients, manage patients, manage requests and finally logout.

Actors :

- Donor, Patient and Admin. Here the admin need to manage everything. She/he needs to manage donor requests and patient requests and their details and he can do this only by login in to the BBMS.

5.2 CLASS DIAGRAM:

- The most widely use UML diagram is the class diagram. It is the building block of all object-oriented software systems.
- We use class diagrams to depict the static structure of a system by showing system's classes, their methods and attributes. Class diagrams also help us identify relationship between different classes or objects.

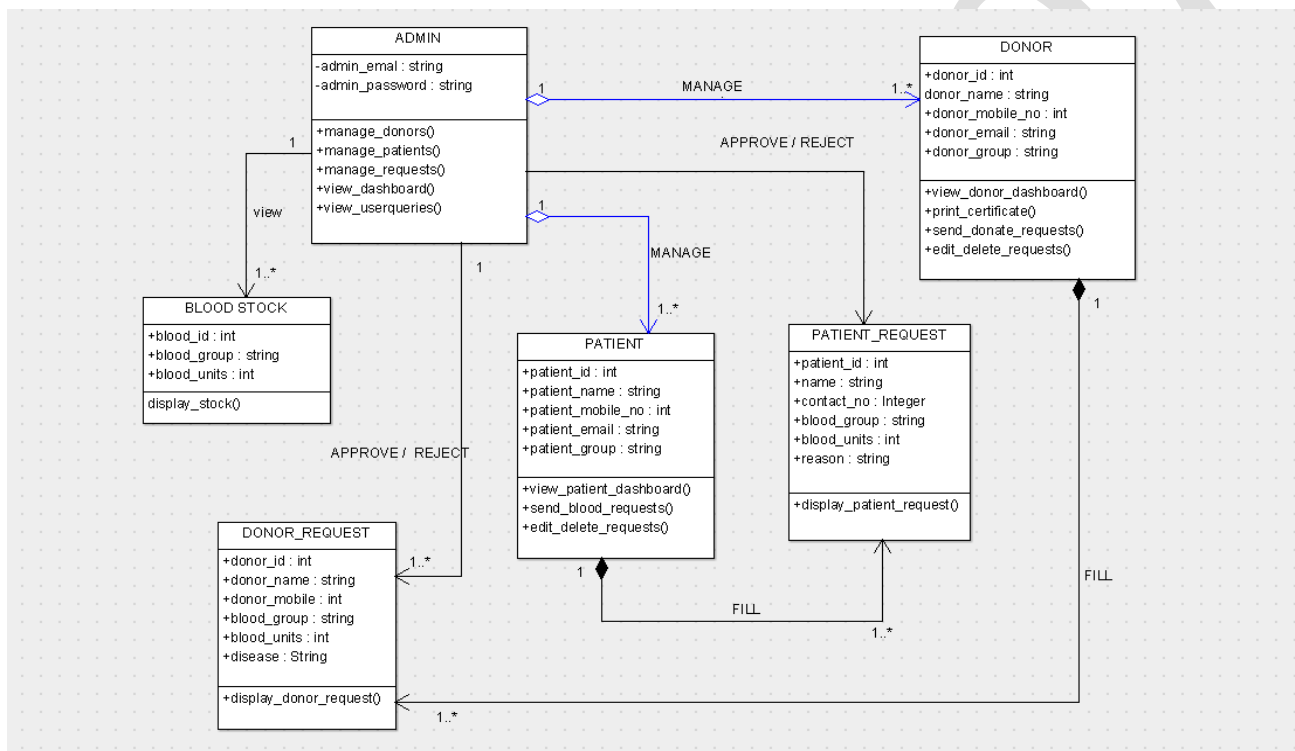


Figure 3: CLASS DIAGRAM

Classes:

- Admin, User, Donor, Patient and Blood Stock. And we used aggregation, composition, unidirectional association relationships between the classes.

Aggregation relationship:

- Admin -Patient and Admin-Donor

Composition relationship:

- User-Patient and User-Donor.

Unidirectional Association:

- Blood Stock and Admin.

5.3 STATE DIAGRAM:

- A state diagram is used to represent the condition of the system or part of the system at finite instances of time. It's a behavioural diagram and it represents the behaviour using finite state transitions.
- State diagrams are also referred to as State machines and State-chart Diagrams.
- These terms are often used interchangeably. So simply, a state diagram is used to model the dynamic behaviour of a class in response to time and changing external stimuli.

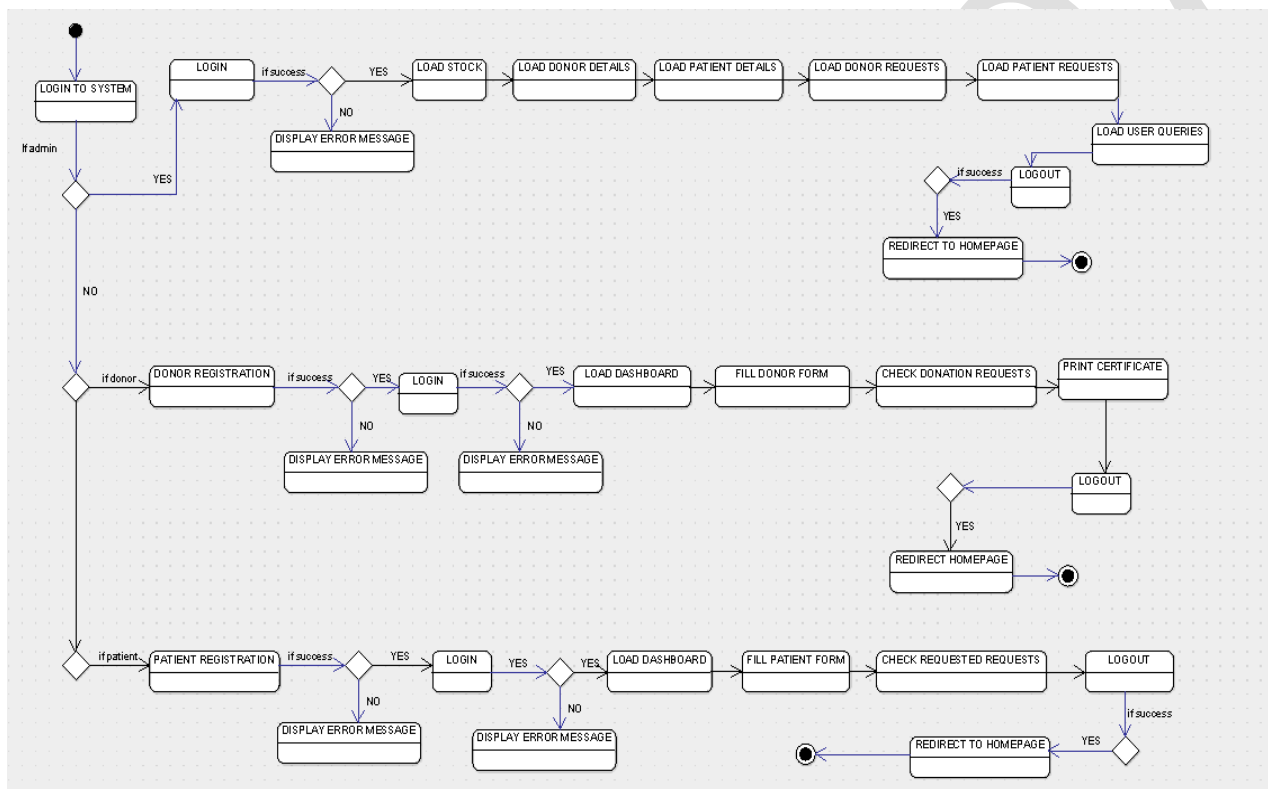


Figure 4: STATE DIAGRAM

Login Components:

- Admin
- Donor
- Receiver/Patient

5.4 ACTIVITY DIAGRAM:

- We use Activity Diagrams to illustrate the flow of control in a system. We can also use an activity diagram to refer to the steps involved in the execution of a use case.
- We model sequential and concurrent activities using activity diagrams. So, we basically depict workflows visually using an activity diagram. An activity diagram focuses on condition of flow and the sequence in which it happens.
- We describe or depict what causes a particular event using an activity diagram.

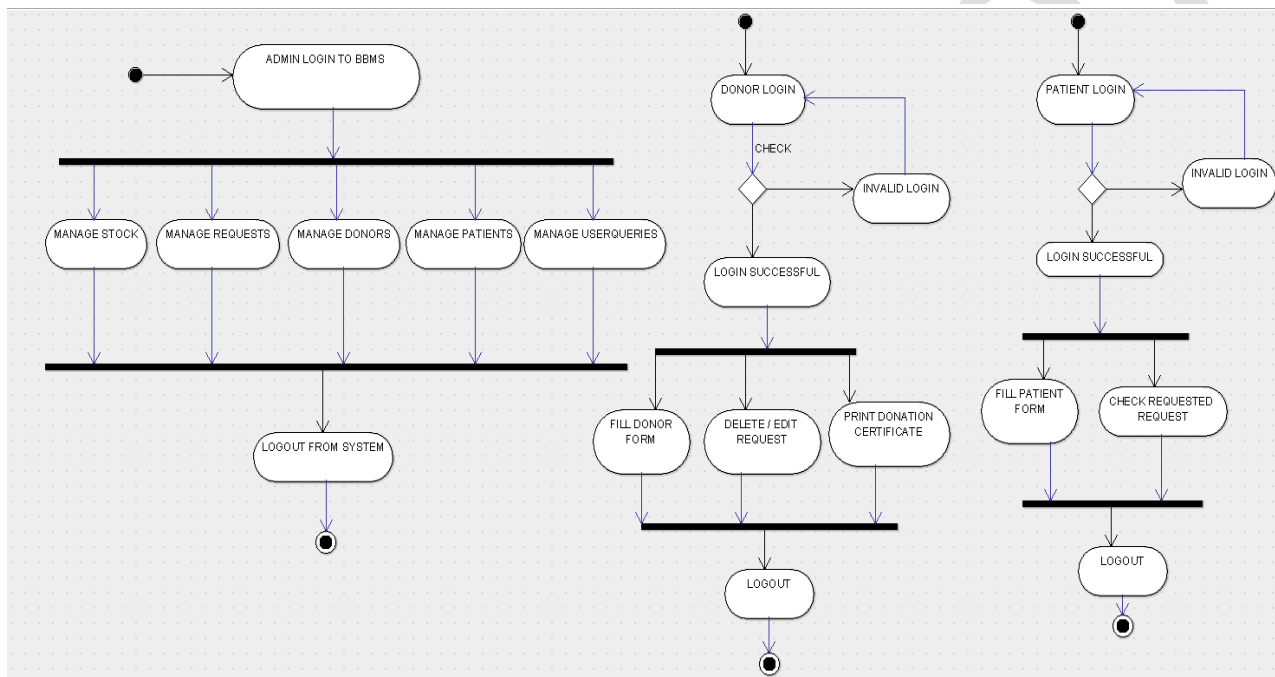


Figure 5: ACTIVITY DIAGRAM

Activities:

- Admin will login into the system and he will manage the donor, manage the patient, manage the donor requests and manage the patient requests and then he will get logout from the system.
- And the donor will login in to the BBMS system and he will fill the donor form and check donation requests and print the certificates and then get logout from the system.
- And the patient will login into the system and then he will request for the blood and check their accepted/rejected requests and get logout from the system.

5.5 SEQUENCE DIAGRAM:

- The sequence diagram represents the flow of messages in the system and is also termed as an event diagram. It helps in envisioning several dynamic scenarios.
- It portrays the communication between any two lifelines as a time-ordered sequence of events, such that these lifelines took part at the run time.
- In UML, the lifeline is represented by a vertical bar, whereas the message flow is represented by a vertical dotted line that extends across the bottom of the page. It incorporates the iterations as well as branching.

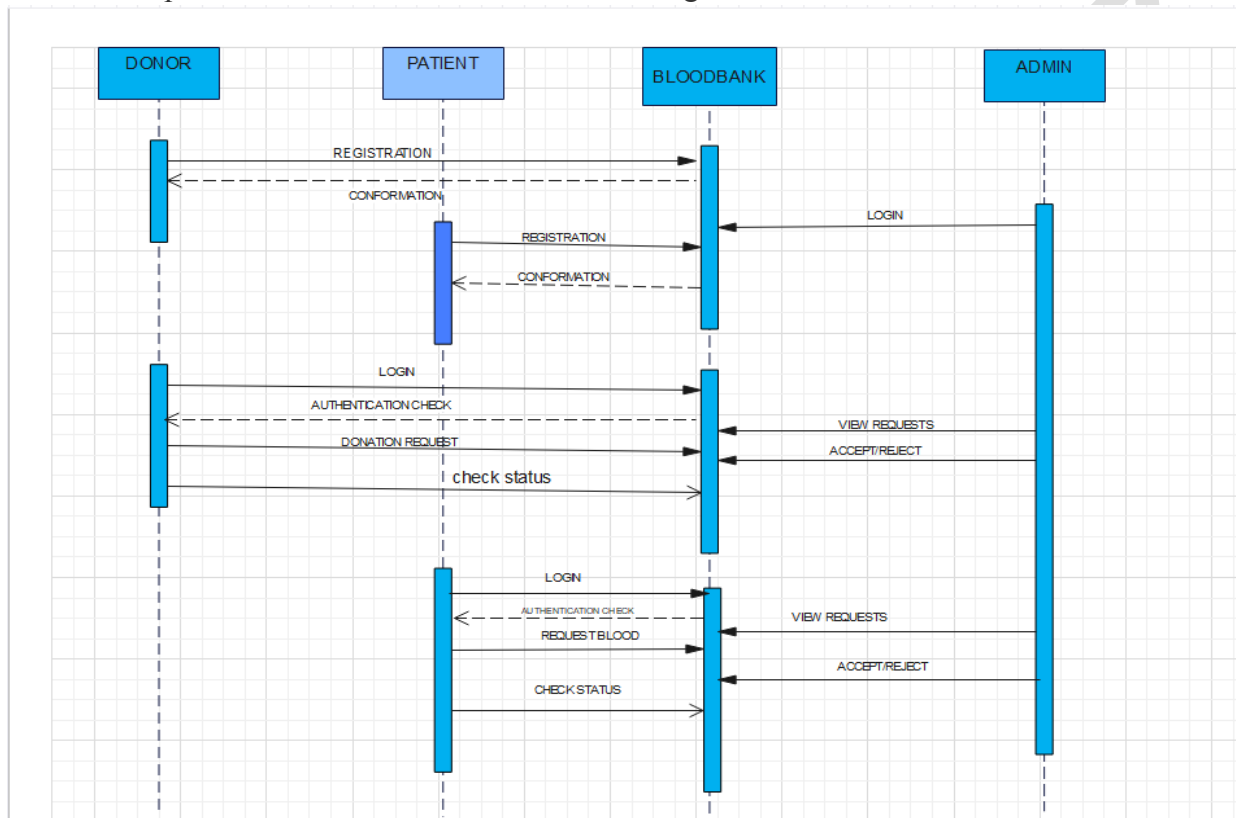


Figure 6: SEQUENCE DIAGRAM

Objects:

- Admin
- Donor
- Patient
- Blood Bank

Messages:

- Registration.
- Confirmation
- Login
- Authentication Check.
- Check Status.
- Request Blood.
- View Requests.
- Accept/Reject.

5.6 COLLABORATION DIAGRAM:

- The collaboration diagram is used to show the relationship between the objects in a system. Both the sequence and the collaboration diagrams represent the same information but differently.
- Instead of showing the flow of messages, it depicts the architecture of the object residing in the system as it is based on object-oriented programming.
- An object consists of several features. Multiple objects present in the system are connected to each other. The collaboration diagram, which is also known as a communication diagram, is used to portray the object's architecture in the system.

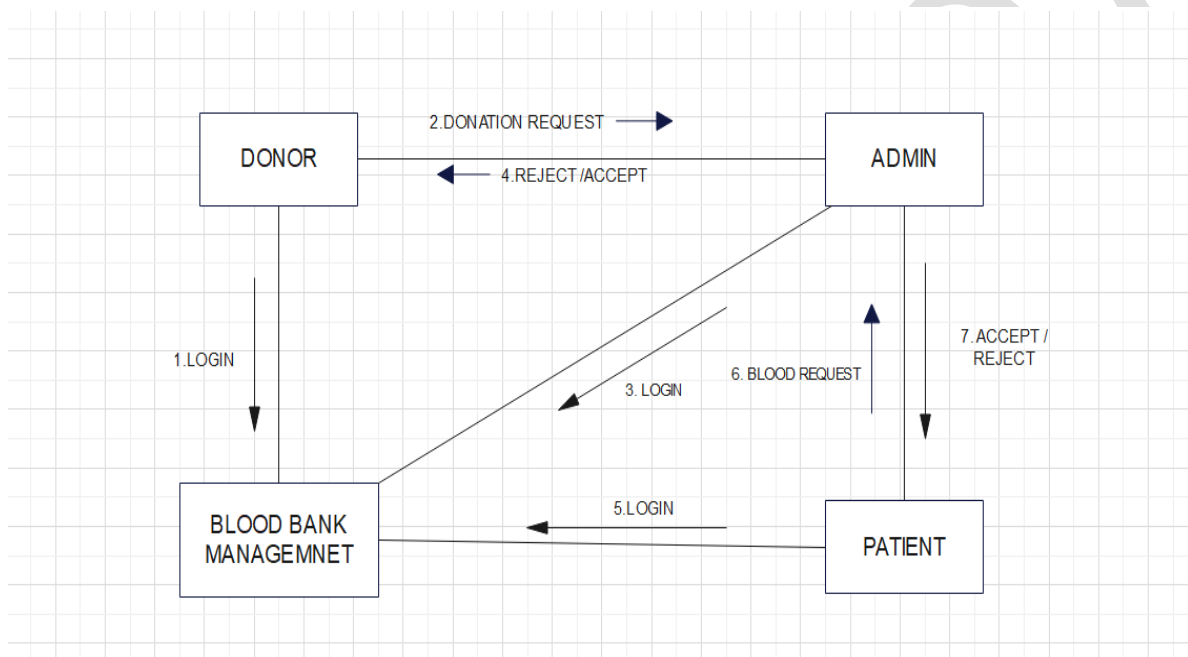


Figure 7: COLLABORATION DIAGRAM

Objects:

- Admin
- Donor
- Patient
- Blood Bank Management.

Messages:

- Login.
- Donation Request.
- Reject.
- Accept.
- Blood Request.

5.7 COMPONENT DIAGRAM:

- A component diagram is used to break down a large object-oriented system into the smaller components, so as to make them more manageable.
- It models the physical view of a system such as executable, files, libraries, etc. that resides within the node.
- It visualizes the relationships as well as the organization between the components present in the system. It helps in forming an executable system. A component is a single unit of the system, which is replaceable and executable.
- The implementation details of a component are hidden, and it necessitates an interface to execute a function. It is like a black box whose behaviour is explained by the provided and required interfaces.

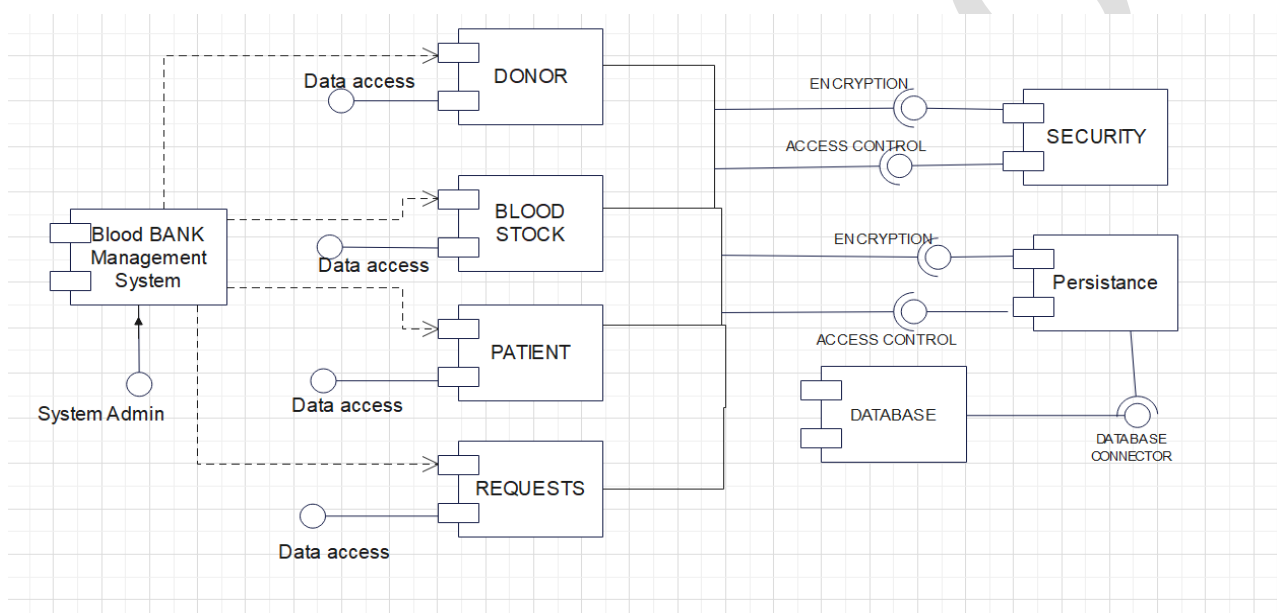


Figure 8: COMPONENT DIAGRAM

5.8 DEPLOYMENT DIAGRAM:

- Deployment Diagrams are used to represent system hardware and its software. It tells us what hardware components exist and what software components run on them.
- We illustrate system architecture as distribution of software artifacts over distributed targets. An artefact is the information that is generated by system software.
- They are primarily used when software is being used, distributed or deployed over multiple machines with different configurations.

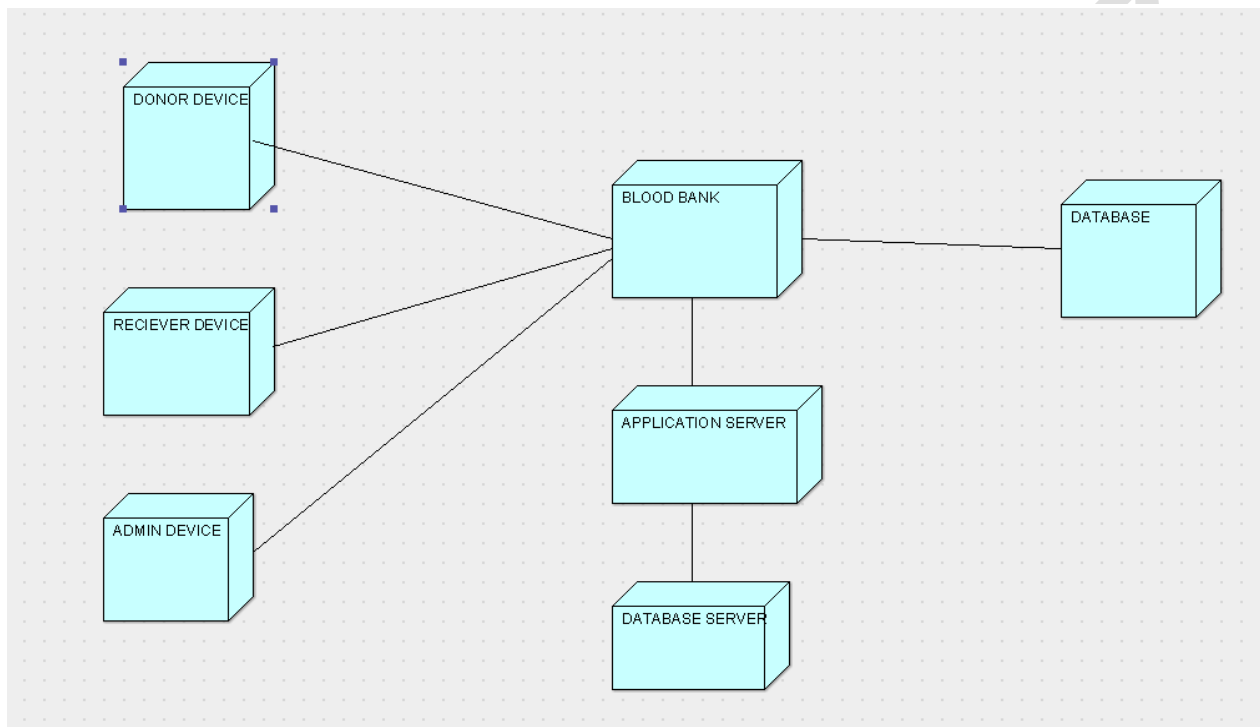


Figure 9: DEPLOYMENT DIAGRAM

- In the above diagram, the donors require only the blood bank system. For this blood bank system, there is a use for application server and database server.
- Application server has the application part and the database server consists of all the databases related to the project. To store the data, we require a hardware part like data base, which has to be connected.

WEBSITE

6.1 SAMPLE CODE:

```

22     }
23   }
24 }>
25 <!DOCTYPE html>
26 <html lang="en">
27 <head>
28   <meta charset="UTF-8">
29   <meta http-equiv="X-UA-Compatible" content="IE=edge">
30   <meta name="viewport" content="width=device-width, initial-scale=1.0">
31   <title>Admin Login</title>
32   <!-- Bootstrap files -->
33   <link rel="stylesheet" href="../../bootstrap/css/bootstrap.min.css">
34   <script src="../../bootstrap/js/bootstrap.min.js"></script>
35   <!-- External CSS file -->
36   <link rel="stylesheet" href="../../css/styles.css">
37 </head>
38 <body>
39   <nav class="navbar navbar-expand-lg navbar-dark bg-danger">
40     <a class="navbar-brand" href="login.php">Blood Bank Management System</a>
41     <button class="navbar-toggler" type="button" data-toggle="collapse" data-target="#navbarNav" aria-controls="navbarNav" aria-expanded="false" aria-label="Toggle na
42       <span class="navbar-toggler-icon"></span>
43     </button>
44     <div class="collapse navbar-collapse" id="navbarNav">
45       <ul class="navbar-nav">
46         <li class="nav-item">
47           <a class="nav-link" href="../../index.php">Home</a>
48         </li>
49         <li class="nav-item">
50           <a class="nav-link" href="login.php">Admin</a>
51         </li>
52         <li class="nav-item">
53           <a class="nav-link" href="../../donor/login.php">Donor</a>
54         </li>
55         <li class="nav-item">
56           <a class="nav-link" href="../../patient/login.php">Patient</a>
57         </li>
58         <li class="nav-item">

```

The above is the sample code of “ADMIN” login page.

6.2 Home Page:

Blood Bank Management System
Home Admin Donor Patient ContactUs

India is facing a huge blood shortage, with a demand and supply gap of 2.5 donations per 1,000 eligible persons, according to a recent s

What is Blood Bank Management System?

Blood bank is a place where blood bag that is collected from blood donation events is stored in one place. The term "blood bank" refers to a division of a hospital laboratory where the storage of blood product occurs and where proper testing is performed to reduce the risk of transfusion related events . The process of managing the blood bag that is received from the blood donation events needs a proper and systematic management. The blood bag must be handled with care and treated thoroughly as it is related to someone's life. The development of Web-based Blood Bank Management System (BBMS) is proposed to provide a management functional to the blood bank in order to handle the blood bag and to make entries of the individuals who want to donate blood and who are in need.

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Over the years, blood banking has helped save countless lives. Most blood banks, including the American Red Cross, rely on volunteer blood donors. During a typical blood donation, about 1 pint of blood is collected, along with a few small tubes for testing. The tubes and donation are labeled with donor information and sent off for processing and testing. Next,

to provide a management functional to the blood bank in order to handle the blood bag and to make entries of the individuals who want to donate blood and who are in need.

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Our Centers?

Andhra Pradesh

We are having a center in AP and it was running successfully.

Delhi

We are having a center in Delhi and it was running successfully.

Patna

We are having a center in Patna and it was running successfully.

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Figure 6.2.2 Home Page-2

6.3 Admin page:

Blood Bank Management System

HomeAdminDonorPatient

Admin Login Page

Email:

Enter email ID

Password:

Enter Password

Login

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Figure 6.3 Admin page

6.4 Admin Dashboard:

Blood Bank Management System

Name: Varshitha

DashboardDonorsPatientsDonationsRequestsUserqueriesLogout

A+

Blood Available

Total: 40 Units

A-

Blood Available

Total: 22 Units

B+

Blood Available

Total: 8 Units

B-

Blood Available

Total: 0 Units

AB+

Blood Available

Total: 1 Units

AB-

Blood Available

Total: 0 Units

O+

Blood Available

Total: 23 Units

O-

Blood Available

Total: 16 Units

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Figure 6.4 Admin Dashboard

6.5 Donors List:

Blood Bank Management System

Name: Varshitha

Dashboard

Donors

Patients

Donations

Requests

Logout

List of all Donors

S.No	Donor ID	Donor Name	Donor Email	Mobile No	Action
1	1	Gollangi Ojaswini Sree	gollangi@gmail.com	2356783456	<div>EditDelete</div>
2	2	Alluri Sai Chandhana	saichandhana@gmail.com	2345623456	<div>EditDelete</div>
3	3	Nakka Neeraja	neeraja@gmail.com	1232343234	<div>EditDelete</div>
4	4	Makka Navya	navyabindu@gmail.com	6785647568	<div>EditDelete</div>

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Figure 6.5 Donors List

6.6 Editing donor details:

Blood Bank Management System	Name: Varshitha	Dashboard	Donors	Patients	Donations	Requests	Logout
------------------------------	-----------------	-----------	--------	----------	-----------	----------	--------

Edit Donor

Name:

Email:

Password:

Mobile

Figure 6.6 Editing donor details

6.7 After successfully editing:

localhost says
Donor updated successfully...

OK

Figure 6.7 After successfully editing

6.8 After deleting donor:

localhost says
Donor deleted successfully...

OK

Figure 6.8 After deleting donor

6.9 Patient List:

Blood Bank Management System

Name: Varshitha

Dashboard

Donors

Patients

Donations

Requests

Logout

List of all Donors

S.No	Donor ID	Donor Name	Donor Email	Mobile No	Action
1	1	Gollangi Ojaswini Sree	gollangi@gmail.com	2356783456	<div>EditDelete</div>
2	2	Alluri Sai Chandhana	saichandhana@gmail.com	2345623456	<div>EditDelete</div>
3	3	Nakka Neeraja	neeraja@gmail.com	1232343234	<div>EditDelete</div>
4	4	Makka Navya	navyabindu@gmail.com	6785647568	<div>EditDelete</div>

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Figure 6.9 Patient List

6.10 Editing the patient:

Blood Bank Management System		Name: Varshitha		Dashboard	Donors	Patients	Donations	Requests	Logout
------------------------------	--	-----------------	--	-----------	--------	----------	-----------	----------	--------

Edit Patient

Name:

Email:

Password:

Mobile

[Update](#)

Figure 6.10 Editing the patient

6.11 After editing the patient:

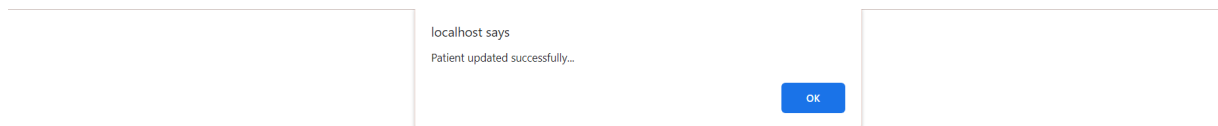


Figure 6.11 After editing the patient

6.12 After deleting the patient:

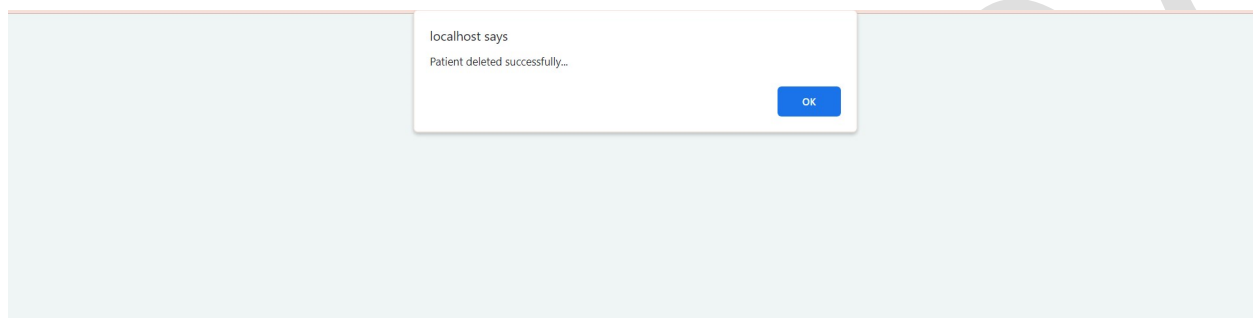


Figure 6.12 After deleting the patient

6.13 Donors Requests (Approving and Rejecting):

Blood Bank Management System									
Name: Varshitha				Dashboard	Donors	Patients	Donations	Requests	Logout
Manage Donation Request									
S.No	Donation ID	Donor Name	Mobile No	Blood group	Units(in ml)	Disease	Status	Action	
3	1024	Alluri Sai Chandhana	2345623456	AB+	13	no	No Action	Approve	Reject
4	1025	Nakka Neeraja	1232343234	A+	14	no	No Action	Approve	Reject

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Figure 6.13 Donors Requests

6.14 Patients Requests (Approving and Rejecting):

Blood Bank Management System

Name: Varshitha

Dashboard

Donors

Patients

Donations

Requests

Logout

Manage Blood Requests

S.No	Request ID	Patient Name	Mobile No	Blood group	Units(in ml)	Reason	Status	Action
2	12	Patient Name 2	2147483647	A+	5	suffering from dengue	No Action	<div>Approve</div> <div>Reject</div>
3	13	Patient Name 3	9898989898	AB-	2	blood cancer	No Action	<div>Approve</div> <div>Reject</div>

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Figure 6.14 Patients Requests

6.15 After Logout:


Blood Bank Management System

Home Admin Donor Patient ContactUs

India is facing a huge blood shortage, with a demand and supply gap of 2.5 donations per 1,000 eligible persons, according to a recent s

What is Blood Bank Management System?

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Over the years, blood banking has helped save countless lives. Most blood banks, including the American Red Cross, rely on volunteer blood donors. During a typical blood donation, about 1 pint of blood is collected, along with a few small tubes for testing. The tubes and donation are labeled with donor information and sent off for processing and testing. Next,

Figure 6.15 After Logout

6.16 Donor Login:

Blood Bank Management System

HomeAdminDonorPatient

Donor Login Page

Email:

Enter email ID

Password:

Enter Password

Login

don't have an account? [Register here](#)

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Figure 6.16

6.17 Donor Registration Page:

Blood Bank Management System

HomeAdminDonorPatient

Register Page

Name:

Enter your name

Email:

Enter email ID

Password:

Enter Password

Mobile

Mobile No.

Register

Already registered? [Login here](#)

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Figure 6.17 Donor Registration Page

6.18 Donor Dashboard:

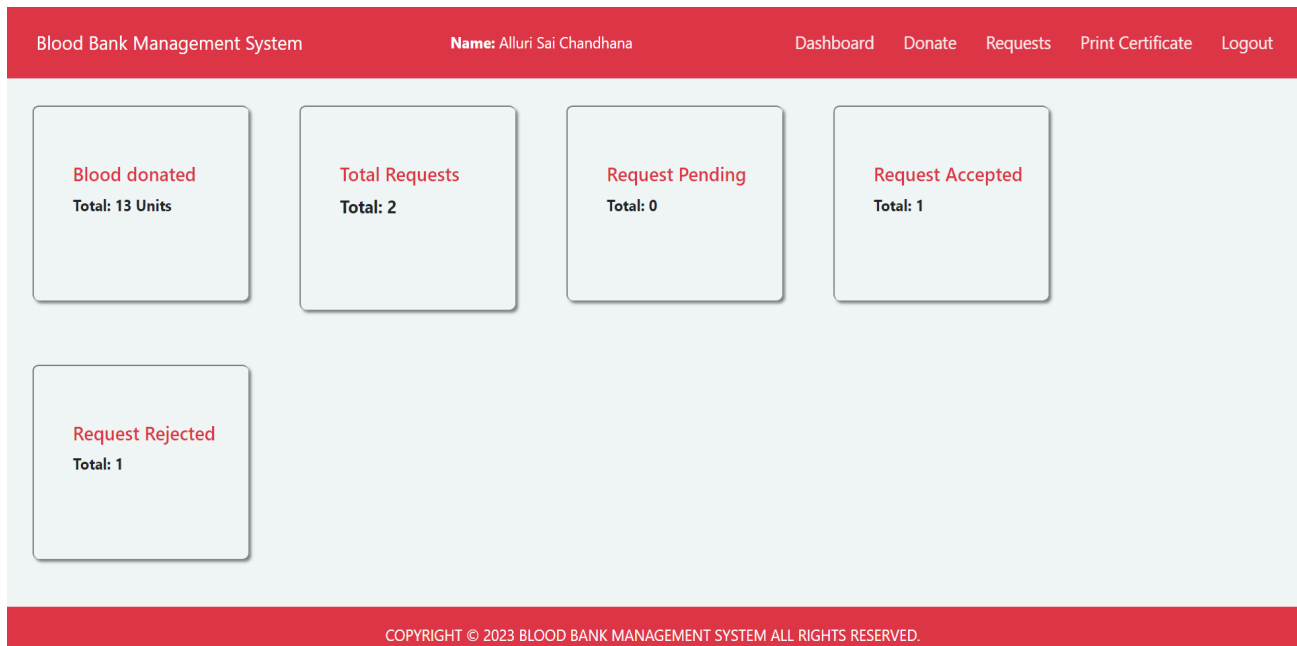


Figure 6.18 Donor Dashboard

6.19 Donor Form:

The Donor Form includes the following fields:

- Blood Group: A+
- No of Units: 5
- Disease (if any): No Disease

The form has a Submit button. To the right of the form is a photo of a blood donation. The footer contains the copyright notice: COPYRIGHT © 2023 BLOOD BANK MANAGEMENT SYSTEM ALL RIGHTS RESERVED.

Figure 6.19 Donor Form

6.20 After Submission:

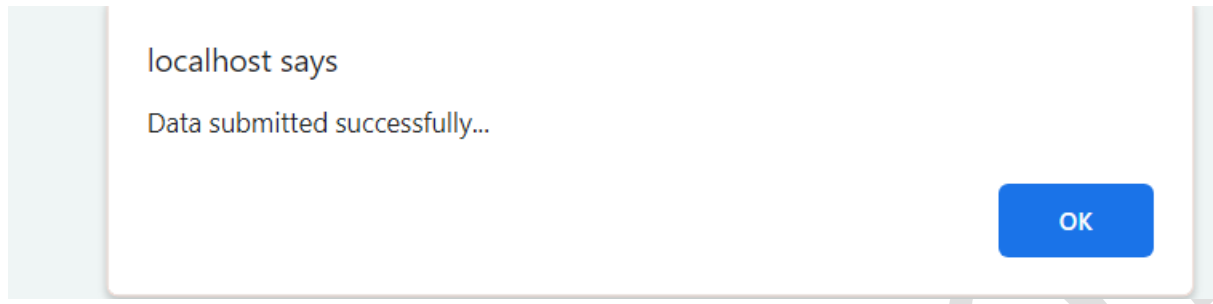


Figure 6.20 After Submission


6.21 View Requests (Accepted or Rejected):

Blood Bank Management System		Name: Alluri Sai Chandhana	Dashboard	Donate	Requests	Print Certificate	Logout
Donation Requests							
S.No	Donation ID	Units (in ml)	Status	Action			
1	1024	13	Approved				
2	1026	12	Rejected				
3	1027	5	No Action	Edit Delete			

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Figure 6.21 View Requests

6.22 Print Certificate:



***Blood Donation
Certificate***

REWARDED TO :- Alluri Sai Chandhana

ORGANIZED BY :- SAHA ORGANIZATION

I EXTEND OUR APPRECIATION OF YOUR
DONATION IN THIS

Figure 6.22 Print Certificate


6.23 After Logout:

Blood Bank Management System

Home Admin Donor Patient

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Figure 6.23 After Logout

6.24 Patient Login:

Blood Bank Management System

Home Admin Donor Patient

Patient Login Page

Email:

Password:

[Login](#) [Don't have an account? Register here](#)

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Figure 6.24 Patient Login

6.25 Patient Registration form:

Blood Bank Management System

Home Admin Donor Patient

Registration Page

Name:

Enter your name

Email:

Enter email ID

Password:

Enter Password

Mobile

Mobile No.

Register

Already registered? [Login here](#)

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Figure 6.25 Patient Registration form

6.26 Patient Dashboard:

Blood Bank Management System

Name: Patient Name 3

Dashboard Request Blood Requests History Logout

Blood Requested

Total: 0 Units

Total Requests

Total: 1

Request Pending

Total: 0

Request Accepted

Total: 0

Request Rejected

Total: 1

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Figure 6.26 Patient Dashboard

6.27 Patient Request Form:

The screenshot shows the 'Blood Request Form' interface within the 'Blood Bank Management System'. The top navigation bar is red and contains the system name, the user's name 'Name: Patient Name 3', and links to 'Dashboard', 'Request Blood', 'Requests History', and 'Logout'. The form itself is a light blue box with the title 'Blood Request Form'. It contains three input fields: 'No of Units' with the value '14', 'Blood Group' with the value 'B-', and 'Reason' with the value 'DENGUE'. A red 'Request' button is at the bottom of the form. The footer of the page is red and contains the copyright notice: 'COPYRIGHT © 2023 BLOOD BANK MANAGEMENT SYSTEM ALL RIGHTS RESERVED.'

Figure 6.27 Patient Request Form

6.28 After Submitting:

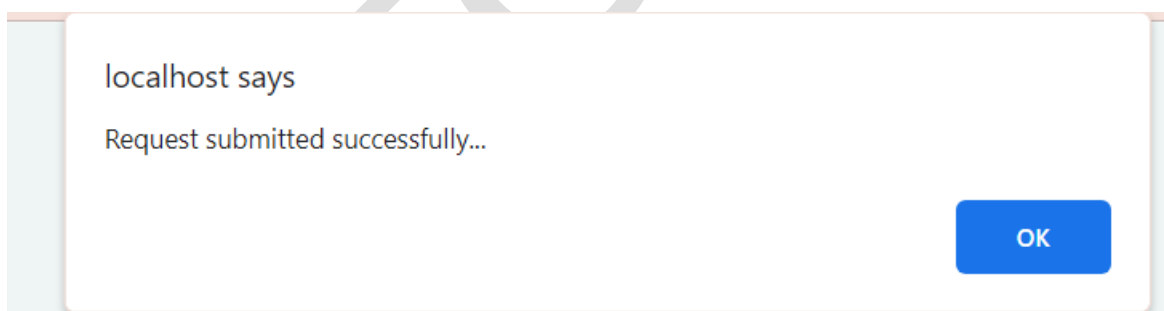


Figure 6.28 After Submitting

6.29 Request History:

Blood Bank Management System
Name: Patient Name 3
Dashboard
Request Blood
Requests History
Logout

Your Requests

S.No	Request ID	Units (in ml)	Status	Action
1	13	2	Rejected	
2	14	14	No Action	Edit Delete

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Figure 6.29 Request History

6.30 After Logout:

Blood Bank Management System
Home
Admin
Donor
Patient

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Figure 6.30 After Logout

CONCLUSION

The Blood Bank Management System (BBMS) project serves as a vital tool for optimizing the operations of blood banks and enhancing the blood donation process. With features such as streamlined information access, reduced manual effort, donor-recipient interaction, inventory management, appointment scheduling, alerts, data security, analytics, and emergency response capabilities, the BBMS application provides a holistic solution to the daily challenges faced by blood bank management. By facilitating efficient communication between donors, recipients, and blood bank personnel, this system not only saves time and minimizes administrative complexities but also plays a crucial role in ensuring the availability of blood units when needed most, ultimately contributing to the well-being and health of the community.

References :

e-RaktKosh : <https://www.eraktkosh.in/BLDAHIMS/bloodbank/transactions/bbpublicindex.html>”